REMARKS

This response is in reply to the Office Action mailed July 30, 2007. Claims 13-24 were pending in the application, and the claims were rejected under 35 USC 103(a) as being unpatentable over US Patent No. 6,524,481, hereinafter Zha, in further view of US Patent No. 4,816,160, hereinafter Ford.

The office action has been carefully studied, and in response claims 13-24 have been cancelled. Claims 25-49 have been added. For reasons discussed below, the claims presently pending define patentable subject matter.

Claim 25 requires a plurality of flexible fibers extending within the cavity for contacting flowing water and removing fine particles from the water without separating a permeate from the water.

Neither Zha nor Ford teach flexible fibers configured to function in cleaning water such that a permeate or filtrate is not produced, as the claims require. Indeed, both references disclose and teach only a membrane module comprising fibers that are hollow. Each hollow fiber forms a tubular membrane through which a permeate is extracted from the water and collected in the lumens of the hollow fibers, wherefrom the permeate is drawn or pumped. More particularly, the fibers of Zha form porous tubes or tubular membranes in a membrane module. The wall of each tube comprises a porous membrane through which the water to be cleaned is filtered and from which a permeate is produced. The membrane separates the permeate, or clarified water, from the water to be cleaned. Ford teaches only a hollow fiber cross-flow concentrator that includes essentially the same structure. Both Zha and Ford, of necessity, include potting

structures into which ends of the fibers are secured and through which the lumens of the fibers are placed in fluid communication with a clarified water outlet.

Thus, the issue presented is one of claim construction, and in particular, how element b of claim 25 should be construed. This element of the claim cannot be reasonably construed to include a fiber that produces a permeate. Thus, no reasonable construction can encompass the filtering devices of Zha or Ford.

Additionally, claim 25 calls for a water cleaning device having a housing that includes first and second opposed end portions. The claim further requires a header jacket adjacent the second end portion. The header jacket is required to have two outlets: a clarified water outlet for discharging clarified or cleaned water from the cavity, and a waste outlet for discharging a concentrated waste from the cavity.

Neither Zha nor Ford teach a device for cleaning water wherein an outlet for clarified water and an outlet for concentrated waste are both disposed in a header jacket on one end portion of the device as claimed. Specifically, the membrane module of Zha includes no header jacket that has both a clarified water outlet and a concentrated waste outlet. Rather, Zha discloses a potting structure for securing hollow fiber ends 7, 8 at each end of a support structure such as a screen 9 as shown in Figure 1. Zha does describe a top potted head, also using the numeral 8 to denote the head as shown in Figures 7 and 8 and discussed at column 7 lines 60-63. The top potted head is shown adjacent a dome-shaped, jacket-like covering that is further shown with a filtrate outlet. This particular structure is not discussed in the description nor is a reference numeral included for this structure. The dome-shaped structure clearly, however, does not include a concentrated waste outlet. Thus, Zha does not teach or

disclose a structure having both a clarified water outlet and a concentrated waste outlet in a header disposed adjacent an end portion of the housing as claimed.

Likewise, Ford does not disclose or teach a structure in that includes both a clarified water outlet and a waste outlet in the same end portion. The hollow fiber concentrator of Ford includes together on one end portion a feed suspension inlet 15 for the water to be cleaned and a lumen outlet port 16 for discharging the clarified water. See Figures 1 and 2. The opposite end portion of the hollow fiber concentrator of Ford includes an outlet 17 for discharging partially cleaned water and an lumen inlet 18 for receiving clarified liquid for liquid backflushing and for receiving compressed gas for purging from the filter the particles that are flushed from the fibers. Thus, Ford does not teach a structure having a clarified water outlet and a concentrated waste outlet both disposed together in one end portion of the housing as claimed.

Claim 25 further provides that in one mode of operation of the water cleaning device, both the gas and the water are directed through the cavity and some of the fine particles are cleaned from the fibers producing the concentrated waste that is discharged from the cavity through the waste outlet.

Neither Zha nor Ford meet this limitation. Specifically, Zha includes no structure for discharging concentrated waste through an outlet in a header jacket. Likewise, the structure of Ford does not include a concentrated waste outlet in the same end portion as the clarified water outlet.

Claim 34 is similar to claim 25. Claim 34 still includes the limitations that the clarified water outlet and the waste outlet are both disposed in one end portion of the

housing while the inlet for the water to be cleaned and the inlet for a gas are both disposed on an opposite end portion of the housing.

Neither Zha nor Ford include outlets and inlets disposed as claimed. The membrane module of Zha includes a screen surrounding the tubular membranes, and water to be cleaned is permitted entry to the spaces surrounding the membranes. The water is concentrated by particles filtered from the water being continually sloughed off the membranes back into the water by the cleaning process described in Zha. Zha does not discharge waste at all, but rather keeps the waste in the water, concentrating the waste in the water as the permeate is drawn out through the membranes. Zha has no waste outlet.

Likewise, the hollow fiber concentrator of Ford includes only two ports, a feed suspension inlet 15 and clarified liquid outlet 15 on one end portion. Ford does not include a waste outlet on the same end portion as the clarified water outlet. Further, the concentrator of Ford includes on the opposite end portion only two ports, an inlet 18 for a gas and an outlet 17 for partially cleaned water. Thus, the device does not include the inlet for water to be treated and the inlet for gas on the opposite end portion from the end portion having the clarified water and waste outlets.

Claim 41 provides a method of treating water having fine particles therein with a device having a treatment cavity, a gas inlet and a water inlet disposed on one portion of the device, and a clarified water outlet and a concentrated waste outlet disposed on another portion of the device. The method includes directing the water into the water inlet and through the treatment cavity. As the water is passed through the treatment cavity, the method includes flowing the water adjacent a plurality of flexible fibers

extending within the treatment cavity and removing fine particles from the water without separating a permeate from the water. The method further includes injecting gas into the treatment cavity and mixing the gas with the water having the fine particles to form a gas-water mixture. The gas-water mixture is passed through the treatment cavity, contacting the fibers, dislodging the fine particles captured on the fibers, and producing a concentrated waste that includes the gas-water mixture and the dislodged fine particles. The method includes the step of closing the concentrated waste outlet, opening the clarified water outlet, and discharging the clarified water out the clarified water outlet. The method also includes the step of closing the clarified water outlet, opening the concentrated waste outlet and discharging the concentrated waste through the concentrated waste outlet.

Neither the apparatus of Zha nor the hollow fiber cross-flow concentrator of Ford are capable of performing the claimed method.

For the foregoing reasons, it is respectfully urged that all claims in the present application define patentable subject matter. Allowance is requested.

In response to the request of the Patent Office, the abstract has been amended to strike the words "is provided" from second sentence.

Respectfully submitted,

COATS & BENNETT, P.L.L.C.

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Larry L. Coats
Registration No.: 25,620

1400 Crescent Green, Suite 300
Cary, NC 27518
Telephone: (919) 854-1844
Facsimile: (919) 854-2084